# 1. Introduction

## 1.1 Motivation

Migration and fertility are two major life events that are highly intertwined. Fertility is one of the main determinants of population development, and fertility of migrants has important implications for the country of destination. By comparing the fertility of migrants to the fertility of those who stayed in the country of origin, we could learn more not only about fertility, but about the driving factors of migration, the intentions to return, and transnational family arrangements. The fertility of migrants after arrival in the new country of destination has important implications for that country as well. For example, investigating patterns of adaptation to the behaviours of the majority population at destination across time might provide us with insights into integration patterns (Coleman, 1994). The fertility of migrants also plays a key role in current and future population development. It influences fertility indicators, such as the total fertility rate (TFR), the number of children born, and the mean age at first childbirth; and thus determines the size and the characteristics of the following migrant generations whose demographic behaviour is essential to the future development of the population in the country of destination. Fertility indicators of migrants and their descendants determine the population development of the country of destination, and are needed for calculations of current population dynamics and for projections of the future population size and structure. Knowledge of migrant fertility also contributes to our understanding of cultural change within societies.

In previous studies, the migrants' country of origin or citizenship has been used to differentiate between migrant groups. These studies illustrate that fertility behaviour differs by country of origin and by citizenship (Coleman and Dubuc, 2010; Roig Vila and Castro Martín, 2007; Schmid and Kohls, 2009; Sobotka, 2008). In addition, it has been found that the fertility level prevalent in the country of origin predicts the fertility of the migrants in the receiving country (Alders, 2000; Cygan-Rehm, 2011; Sobotka, 2008). However, this approach neglects the individual characteristics of the migrants. Because migrant life courses differ considerably from the life courses of non-migrants, as much information as possible on the decision to migrate should be considered when evaluating migrant fertility. Thus, in this thesis, the aim is to study migrant fertility from a life course perspective, taking into account longer periods of migrants' life courses, including the period before migration.

Among those migration-specific factors, the duration of stay in the country of destination has been found to be of major relevance. For several migrant groups in the US (Carter, 2000; Ford, 1990; Singley and Landale, 1998), Sweden (Andersson, 2004), France (Toulemon, 2004), and Germany (Milewski, 2007, 2010), birth intensities have been found to be particularly high in the years immediately after arrival. Some studies also considered the period before migration, and found that pre-migration birth rates are low. These authors generally attributed this finding to birth postponement in anticipation of migration followed by a period of catch-up after arrival (Carter, 2000; Lübke, 2014). Previous research has found that the age at migration is also essential. It has been shown that adult migrants who arrive in the destination country during

young adulthood have particularly high fertility after arrival, whereas older migrants have lower fertility that declines progressively with their age at arrival (Cygan-Rehm, 2011; Lübke, 2014; Mussino and Strozza, 2012; Toulemon, 2004; Wilson, 2015). Compared to migrants who arrived later in life, migrants who arrived during childhood seem to show fertility patterns that are closer to those of the natives in the country of destination (Adsera et al., 2012; Wilson, 2015). The literature mentioned above shows that individual characteristics play an important role in determining the fertility of migrants and of their descendants. By choosing to take a life course perspective based on individual-level microdata, in this book, it becomes possible to consider the individual migration-specific characteristics of migrants and their descendants, and to evaluate their impact on fertility.

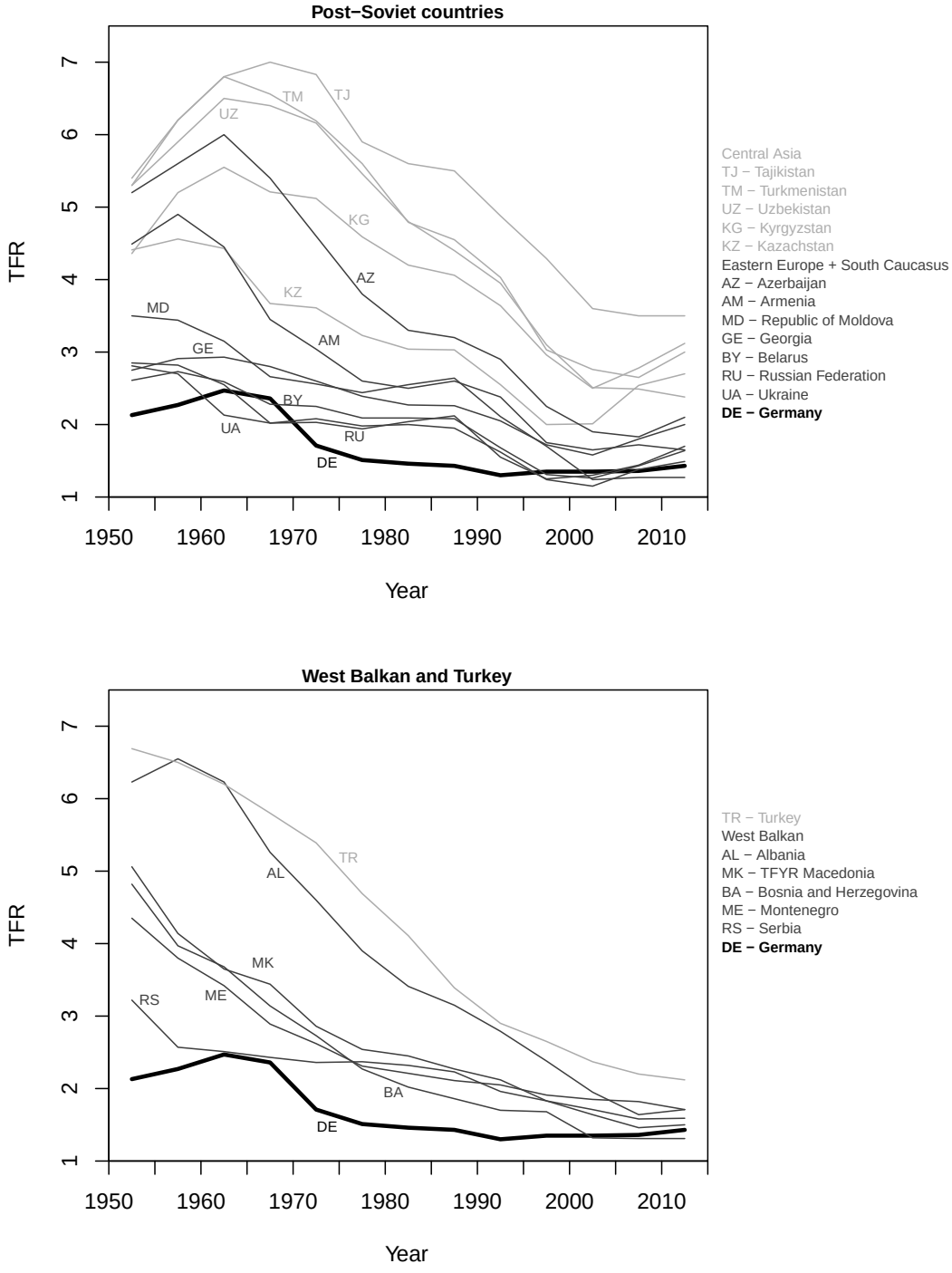
## 1.2 Geographical focus

The main focus of this thesis is on Germany as a receiving country. The major regions of origin are Turkey and Central and Eastern Europe. One of the four chapters studies emigration from Ghana to the UK and the Netherlands.

Many Western European countries are experiencing low fertility levels. As rates of immigration from high-fertility countries have increased, immigration has become an important determinant of population growth (Coleman, 2006). Figures 1.1, 1.2 and 1.3 illustrate that in the past, most of the countries of origin under study have had higher fertility levels than the countries of destination. But the general fertility decline during the second half of the 20th century led to a convergence of fertility levels across countries. Compared to the receiving country of Germany, some countries of origin, such as Turkey and the former Soviet states of Tajikistan, Turkmenistan, and Uzbekistan, continued to have much higher period fertility in the most recent period (2010 to 2015). By contrast, Figure 1.2 shows that the fertility developments in the recent EU accession states have been more similar to the trends in Germany, as most of these countries have had very low period fertility since 1990. Figure 1.3 again shows a typical case of migration from a high-fertility to a low-fertility context, with period fertility being much higher in Ghana than in the receiving countries under study; namely, the Netherlands and the UK.

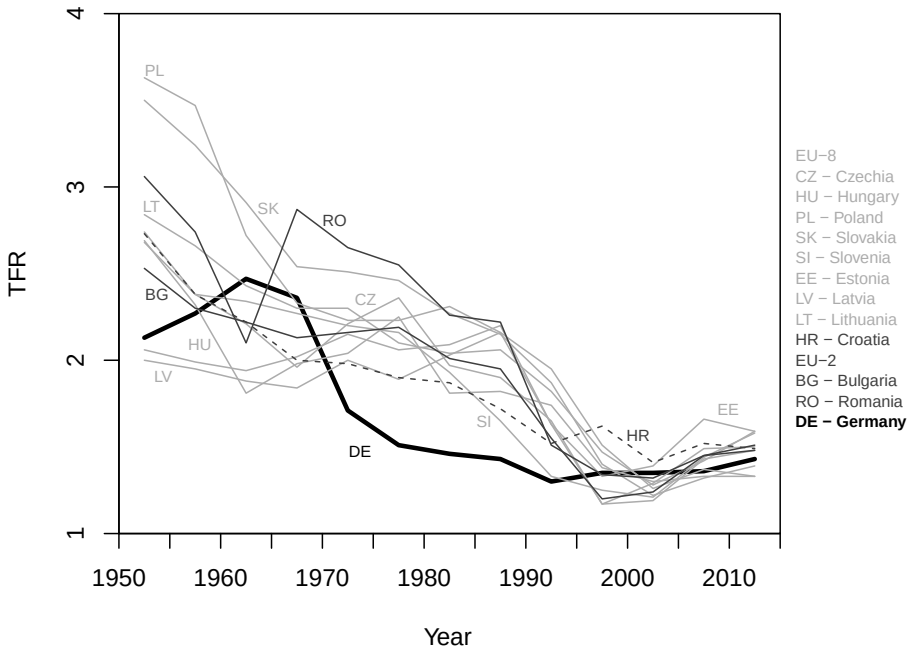
As in many other European countries, births to immigrants contribute considerably to the number of children born in all three regions of destination under study. In England and Wales, the Netherlands, and Germany, children born to immigrants make up around one-fifth of the total number of births recorded (Sobotka, 2008). The TFRs of immigrant women are higher than the TFRs of natives in England, Wales, and the Netherlands (Sobotka, 2008). There are also discrepancies between the TFRs of foreign women and natives in Germany (Schmid and Kohls, 2009).

Figure 1.1: Total fertility rates in post-Soviet countries, West Balkans, Turkey, and Germany



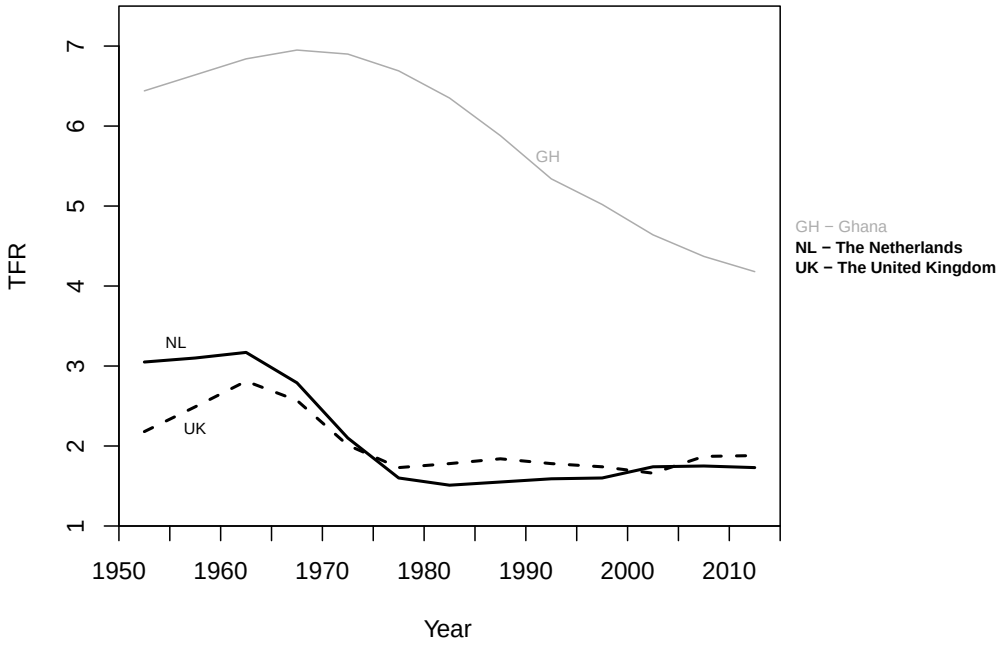

*Data:* World Population Prospects 2017. Authors' own illustration. Five-year averages.

Figure 1.2: Total fertility rates in EU countries and Germany




*Data:* World Population Prospects 2017. Authors' own illustration. Five-year averages.

Figure 1.3: Total fertility rates in Ghana, the Netherlands, and the United Kingdom




*Data:* World Population Prospects 2017. Authors' own illustration. Five-year averages.

## 1.3 Research questions, data, and methods

An important shortcoming of previous studies that have examined this topic is their failure to sufficiently consider the circumstances surrounding migration and the resulting implications for fertility. Some studies have concluded that the reasons for migration play a crucial role in determining fertility after arrival. In the case of Germany, migrants' birth intensities were found to be elevated in the first year after arrival, and to be particularly high in the first year of marriage. Some authors argued that this arrival effect on high fertility might be related to the fact that most of the women migrating to Germany do so on the grounds of family reunification (Milewski, 2007). For the example of Spain, Roig Vila and Castro Martín (2007) found that only migrants from Northern Africa have higher period fertility than Spaniards. In seeking to explain this pattern, the authors speculated that large shares of Northern Africans were migrating for purposes of marriage or family reunification, whereas other migrant groups were more likely to have migrated for work-related reasons. Only recently, a small body of research has emerged that has actually focused on the circumstances surrounding migration or the legal status upon arrival, and that has examined the interplay between these circumstances and fertility. By considering the reasons for obtaining a residence permit, an Italian study was able to show that period fertility and first birth risks were particularly high shortly after arrival among women who migrated for family reasons rather than for work reasons (Mussino and Strozza, 2012). Ortensi (2015) distinguished between family migrants - defined as individuals who migrated together with their family or who migrated to get married or to follow a spouse - from individuals who migrated independently or as the first migrant in their family. She showed that family migrants had higher fertility after arrival in Italy and higher first birth intensities than independent or first migrants. Castro-Martín and Rosero-Bixby (2011) concluded that, in contrast to other immigrant women, those who moved for work purposes and those who already had children in the country of origin had significantly lower fertility during their first years in Spain. Apart from the few exceptions above, indicators of the circumstances surrounding migration have often been neglected due to a lack of suitable data sources. As the issue of migration has become increasingly relevant for host populations, the importance of good data quality has been recognised, and the opportunities to study the life courses of migrants have grown. Individual-level survey data were used to shed more light on the influence of the circumstances surrounding migration on migrant fertility. Here, the main focus is on the partnership dimension and on the legal status upon arrival. In addition, the importance of level of education is emphasised. Education is highly intertwined with the selectivity of migrants. Many authors have found that migrants are not a random sample of the population in the country of origin, but are instead selected regarding specific characteristics (Borjas, 1987; Lee, 1966; Ribe and Schultz, 1980). The degree and the direction of the selectivity of migrants in terms of education seems to vary across countries, but in most cases, migrants are positively selected on their level of education (see Feliciano (2005) for a discussion). The level of education is also a central factor underlying several dimensions of immigrant integration.

For example, education plays a major role in labour market integration (Granato and Kalter, 2001; Kogan, 2010), and in the partner choice of immigrants (González-Ferrer, 2006) and their descendants (Huschek et al., 2012).
In light of these considerations, the main research question for this book is as follows:

- What are the determinants of the fertility of migrants and their descendants? How do the circumstances surrounding migration determine the fertility of migrants? What role does the level of education play in the fertility of migrants and their descendants?

This general research question is subdivided into four sub-questions that are addressed in four separate chapters. By choosing a life course approach, we are able to study different aspects of the migrant life course separately. The first chapter focuses on the period before migration. In the second and third chapters, the determinants of migrant fertility after arrival in the country of destination are examined. Finally, in the fourth chapter, patterns and the determinants of intergenerational adaptation in the country of destination are under study.

### 1.3.1 The fertility of migrants and non-migrants

Most of the previous research on this topic has focused on comparing the fertility behaviour of migrants and native non-migrants in the country of destination by studying the processes through which migrants assimilate to the behavioural patterns of the majority population. But when evaluating migrant fertility, the first step is to understand which types of people decide to migrate, and how their reasons for migration are related to future fertility. Migrants are not a random sample of the population in the country of destination, but are selected regarding specific characteristics. Level of education is among the major factors that determine whether an individual decides to migrate. Since migrants often have higher levels of education than their compatriots who do not emigrate, and having a high level of education is associated with low fertility, migrants are selected on low-fertility characteristics. In chapter 2, the aim is to investigate the effect of educational selectivity on migrant fertility. The main research question to be addressed is as follows:

- How does the association between the level of education and first birth postponement differ between migrants and non-migrants? How is the level of education related to lower completed fertility?

Ghanaian emigration to Europe provides an ideal case study for investigating the selectivity of migrants in terms of education, because international emigration rates from Ghana are exceptionally high among the elites. Within a transnational framework, the Ghanaian sample of the "Migrations between Africa and Europe" project (MAFE) was drawn in 2009/2010, and provides the unique opportunity to compare non-migrants in Ghana to Ghanaian immigrants residing in the UK or the Netherlands.

The retrospective migration histories allow us to create a time-varying migrant status, which changes from non-migrant to migrant status after migration, and is censored upon return to Ghana. Based on retrospective birth histories, we are able to analyse the transition to a first child by employing discrete-time hazard regression models. Migrant status is the main covariate, and we include in our analysis interaction effects between migrant status and age to evaluate whether migrants postpone their first birth, and another interaction between age and level of education to test whether there is an educational gradient in first birth postponement. To measure the differences in completed fertility between Ghanaians who ever migrated and non-migrants in Ghana, the number of children ever born among respondents aged 40 and older is predicted based on Poisson regression models. The level of education is added in a step-wise procedure, in order to understand whether differences in the numbers of children born to migrants and to non-migrants are related to educational differences.

### 1.3.2 Marriage migration versus family reunification

The main focus of chapter 3 is on Turkish migrant fertility during the period after arrival in Germany. The Turkish case is ideal for evaluating how the circumstances upon arrival determine fertility. Large-scale migration from Turkey to Germany was initially driven by a labour recruitment contract signed in 1961. But after this labour recruitment programme ended in 1973, only a few legal channels for immigration remained. The option that has been most frequently used by Turks is migration under the family reunification law, which allows an immigrant's foreign spouse and his or her children under age 16 to immigrate. Apart from family reunifiers in the original sense - i.e., couples who were already married before one of the spouses migrated to Germany and who were reunified later on - this legal channel is often used by so-called marriage migrants. These individuals immigrate from Turkey to follow a spouse who is already living in Germany at the time of the wedding. Transnational marriages are very common among Turkish migrants in Germany; almost half of all married first-generation Turkish migrant men living in Germany are married to a wife who was living in Turkey at the time of the wedding. As this group of migrants differs in a number of ways from other migrant groups, it is particularly interesting to look at how this strategic behaviour is mirrored in the Turkish migrants' fertility behaviour after arrival. By taking into account the couples' migration histories, it becomes possible to distinguish family reunifiers from marriage migrants. The research question to be answered is as follows:

- How does the fertility of migrants after arrival in the country of destination differ between family reunifiers and marriage migrants?

The empirical work is based on the first wave of the German Generations and Gender Survey (GGS), which was drawn in 2006. It includes a sub-sample of first-generation immigrants of Turkish citizenship who are registered in Germany. The data provide retrospective birth histories

and a number of migration-specific covariates. Our sample is restricted to women and men born between 1950 and 1969.
First, age-specific fertility rates and total fertility rates are estimated, and are broken down by age at migration to Germany. Event plots are used to visualise the sequence of migration and first childbirth for all of the individuals in the sample. The multivariate analyses rely on discrete-time regression models on first and second childbirth. The main covariates are the time-varying duration of stay in Germany and the couple's combined marriage and migration histories. We distinguish between migrants who arrived for purposes of family reunification and those who came as marriage migrants. To investigate the differences in the timing effects of the first birth immediately before and after migration to Germany, the combined effect of the duration of stay and the combined marriage and migration histories of the couple are analysed.

### 1.3.3 Migrant fertility and the Eastern enlargement of the EU

Another way to evaluate the impact of the circumstances surrounding migration is to focus on the legal status of migrants upon arrival in the country of destination. In chapter 4, our aim is to answer the following research question:

- How does migrant fertility differ depending on whether a migrant moved before or after the EU accession of the country of origin? To what extent are the differences between the two categories related to differences in socio-economic characteristics such as education and religious affiliation?

To answer this question, we again look at fertility after migration to Germany. However, our main focus is on more recent migrants, who entered the country under a wider range of immigration policies than in the past. Since 1990, the largest group of migrants entering Germany have come from Central and Eastern European countries. There are three different legal channels for immigrating to Germany. For third-country nationals, immigration policies are quite restrictive, and the legal grounds for immigration most commonly used by these individuals are family reunification and belonging to a highly skilled category of workers. There is also a distinct category of Ethnic Germans ("Aussiedler"), who upon immigration receive immediate access to German citizenship, language and integration courses, and options to have their educational credentials recognised. Finally, there is a growing group of migrants from Central and Eastern Europe who arrived in Germany after they were granted full freedom of movement in the course of EU accession.
To examine the fertility dynamics of women who came to Germany between 1990 and 2015, two migrant samples of the German Socio-Economic Panel (GSOEP), collected in 2013 and 2015, are used. Migrants from Central and Eastern Europe (CEE) form the largest group among Germany's recent migrants. An important difference between these CEE nationals and other immigrants is that total fertility in their countries of origin declined sharply after the collapse

of communism. Comparing the birth patterns of CEE immigrants to those of immigrants from other European countries, Africa, the Middle East, and other regions adds to our understanding of the birth dynamics of migrants from low fertility settings, and sheds light on the effect of the migrant's legal status upon arrival to Germany. The effects of migration policies on birth behaviour are evaluated by analysing how birth patterns for CEE immigrants differ depending on whether a migrant arrived as an EU national or as a third-country national before EU accession. Multivariate discrete-time regression models are estimated for first, second, and third births. By applying a step-wise procedure, we control for circular migration patterns; i.e., for whether a respondent has migrated to Germany before. We then include the level of education and a time-varying covariate that indicates whether a respondent was in education at the current age. In a last step, the religious affiliation is added. For the first birth, we also explore whether the "arrival effect" differs by migrant group by estimating an interaction of the duration of stay in Germany and the region of origin. In a second set of models, we examine how fertility patterns differ between migrants from Central and Eastern Europe, and distinguish between Ethnic Germans, EU migrants, and third-country nationals. The distinction between migrants from EU countries and from third countries is based on the country of origin and the year of immigration.

### 1.3.4 Fertility of the 1.5 and second generation

In chapter 5, we explore intergenerational adaptation to the fertility patterns of the destination country by investigating the fertility behaviour of migrants' descendants. If migrants remain in the country of destination, their children grow up in the new context, but are partly socialised by norms and values of the country of origin. A group that has not been sufficiently studied is that of individuals who migrated as children; the so-called 1.5 generation of immigrants. Their childhood experiences differ from those of the second migrant generation, who were born to migrant parents in the country of destination. The following research question focuses on whether differences in socialisation experiences result in fertility differences among subsequent migrant generations:

- To what extent and in what ways do the fertility patterns of migrants' descendants adapt to those of the native population at origin across immigrant generations? Can fertility differences between migrants of the 1.5 generation and the second generation be attributed to differences in their levels of education?

For answering this research question, Turkish immigrants in Germany represent the perfect study population. Currently in Germany, individuals with Turkish roots make up the largest immigrant group originating from a single country, and second-generation immigrants of Turkish origin are reaching ages that allow us to draw initial conclusions regarding their fertility behaviour. The German Mikrozensus, a one-percent sample of all German households, provides a sufficient sample size to allow us to compare Turkish immigrants to native Germans. The extended question programme of the years 2005 and 2009 contains information on the citizenship of the respondent's parents, as well as on the respondents' own citizenship and country of birth. Using these data, it

is possible to distinguish between the second generation, that is, those who have migrant parents but were born in Germany; and the so-called 1.5 generation, that is, those who migrated as children. Both groups are compared to German non-migrant natives, while Ethnic Germans are excluded from this control group.

Because no retrospective fertility histories are available, the number of children per woman is estimated via the number of co-residing children by means of the "own-children method". To provide a first descriptive overview, Kaplan-Meier survival curves of the first and the second childbirth among respondents of migrant origin and of non-migrant German origin are displayed. The multivariate analyses are based on discrete-time hazard models. To evaluate the interplay between education and the migrant background, the level of education is interacted with migrant status. In order to account for changes by age, we run another three-way interaction of migrant status, age, and the level of education.

## 1.4 References

Adsera, A., A. M. Ferrer, W. Sigle-Rushton, and B. Wilson (2012). Fertility patterns of child migrants: Age at migration and ancestry in comparative perspective. *The Annals of the American Academy of Political and Social Science 643*(1), 160–189.

Alders, M. (2000). Cohort fertility of migrant women in the Netherlands. Developments in fertility of women born in Turkey, Morocco, Suriname, and the Netherlands Antilles and Aruba. Paper presented at the BSPS-NVD-URU Conference, 31/08 - 01/09/2000. Utrecht, The Netherlands.

Andersson, G. (2004). Childbearing after migration: Fertility patterns of foreign-born women in Sweden. *International Migration Review 38*(2), 747–774.

Borjas, G. J. (1987). Self-selection and the earnings of immigrants. *The American Economic Review 77*(4), 531–553.

Carter, M. (2000). Fertility of Mexican immigrant women in the US: A closer look. *Social Science Quarterly 81*(4), 1073–1086.

Castro-Martín, T. and L. Rosero-Bixby (2011). Maternidades y fronteras: la fecundidad de las mujeres inmigrantes en España. *Revista Internacional de Sociología 69*(M1), 105–137.

Coleman, D. (2006). Immigration and ethnic change in low-fertility countries: A third demographic transition. *Population and Development Review 32*(3), 401–446.

Coleman, D. A. (1994). Trends in fertility and intermarriage among immigrant populations in Western Europe as measures of integration. *Journal of Biosocial Science 26*(01), 107–136.

Coleman, D. A. and S. Dubuc (2010). The fertility of ethnic minorities in the UK, 1960s-2006. *Population Studies 64*(1), 19–41.

Cygan-Rehm, K. (2011). Between here and there: Immigrant fertility patterns in Germany. BGPE Discussion Paper 109, University of Erlangen-Nuremberg, Department of Economics.

Feliciano, C. (2005). Educational selectivity in U.S. immigration: How do immigrants compare to those left behind? *Demography 42*(1), 131–152.

Ford, K. (1990). Duration of residence in the United States and the fertility of US immigrants. *International Migration Review 24*(4), 34–68.

González-Ferrer, A. (2006). Who do immigrants marry? Partner choice among single immigrants in Germany. *European Sociological Review 22*(2), 171–185.

Granato, N. and F. Kalter (2001). Die Persistenz ethnischer Ungleichheit auf dem deutschen Arbeitsmarkt. *Kölner Zeitschrift für Soziologie und Sozialpsychologie 53*(3), 497–520.

Huschek, D., H. A. G. de Valk, and A. C. Liefbroer (2012). Partner choice patterns among the descendants of Turkish immigrants in Europe. *European Journal of Population 28*(3), 241–268.

Kogan, I. (2010). New immigrants - Old disadvantage patterns? Labour market integration of recent immigrants into Germany. *International Migration 49*(1), 91–117.

Lee, E. S. (1966). A theory of migration. *Demography 3*(1), 47–57.

Lübke, C. (2014). How migration affects the timing of childbearing: The transition to a first birth among Polish women in Britain. *European Journal of Population 31*(1), 1–20.

Milewski, N. (2007). First child of immigrant workers and their descendants in West Germany: Interrelation of events, disruption, or adaptation? *Demographic Research 17*(29), 859–896.

Milewski, N. (2010). Immigrant fertility in West Germany: Is there a socialization effect in transitions to second and third births? *European Journal of Population 26*(3), 297–323.

Mussino, E. and S. Strozza (2012). The fertility of immigrants after arrival: The Italian case. *Demographic Research 26*(4), 99–130.

Ortensi, L. E. (2015). Engendering the fertility-migration nexus: The role of women's migratory patterns in the analysis of fertility after migration. *Demographic Research 32*(53), 1435–1468.

Ribe, H. and T. P. Schultz (1980). Migrant and native fertility in Colombia in 1973: Are migrants selected according to their reproductive preferences? Economic Growth Center Discussion Paper No. 355, Economic Growth Center, Yale University, New Haven.

Roig Vila, M. and T. Castro Martín (2007). Childbearing patterns of foreign women in a new immigration country: The case of Spain. *Population 62*(3), 351–379.

Schmid, S. and M. Kohls (2009). Reproductive behaviour of migrant women in Germany: Data, patterns and determinants. *Vienna Yearbook of Population Research 7*(1), 39–61.

Singley, S. G. and N. S. Landale (1998). Incorporating origin and process in migration-fertility frameworks: The case of Puerto Rican women. *Social Forces 76*(4), 1437–1464.

Sobotka, T. (2008). The rising importance of migrants for childbearing in Europe. *Demographic Research 19*(9), 225–248.

Toulemon, L. (2004). Fertility among immigrant women: New data, a new approach. *Population and Societies 400*, 1–4.

Wilson, B. (2015). *Origin, destination and convergence : Understanding the fertility of international migrants and their descendants.* Ph. D. thesis, London School of Economics and Political Science.